

2. (Amended) A self-replicating vector of claim 1 wherein the bovine papilloma nucleotide sequences are nucleotide sequences of bovine papilloma virus type 1 and the heterologous nucleotide sequence is selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, and a nucleotide sequence encoding a fragment thereof capable of eliciting an immunological response in a recipient.

3. (Amended) A self-replicating vector of claim 1 wherein the heterologous nucleotide sequence encodes the HIV-1 NEF protein (SEQ ID NO:1).

4. (Amended) A self-replicating vector of claim 1 wherein E1 is under the control of the $\text{sr}\alpha\text{L}$ promoter or the thymidine kinase promoter.

5. (Amended) A self-replicating vector of claim 4 which is selected from the group consisting of pBNtkREV, pBNsr α TAT, and pBNsr α NEF as shown in Figures 2, 3, and 4 respectively.

6. (Amended) A vaccine for DNA immunization against HIV consisting essentially of a self-replicating vector of claim 1.

7. (Amended) A vaccine for DNA immunization against HIV consisting essentially of a mixture of vectors, wherein at least one of the mixture of vectors is a self-replicating vector of claim 1.

8. (Amended) A method for preparing a self-replicating recombinant vector of claim 1, said method comprising

A) inserting a heterologous nucleotide sequence encoding the HIV regulatory protein NEF, REV or TAT or an immunologically active fragment thereof into a vector comprising bovine papilloma virus nucleotide sequences consisting essentially of

(i) a bovine papilloma E1 gene and E2 gene,

- (ii) a minimal origin of replication of a bovine papilloma virus, and
- (iii) a minichromosomal maintenance element of a bovine papilloma virus;
- B) transforming a host cell with the resulting self-replicating recombinant vector;
- C) culturing the host cell; and
- D) recovering said vector.

9. (Amended) The method of claim 8 wherein the host cell is an *E. coli* cell.

10. (Amended) A method of DNA immunization against HIV comprising immunizing a person with a vaccine of claim 6 to induce a cytotoxic T lymphocyte response.

11. (Amended) A method of DNA immunization against HIV comprising immunizing a person with a vaccine of claim 7 to induce a cytotoxic T lymphocyte response.

12. (Amended) A method comprising administering to a person in need thereof an immunologically effective amount of a self-replicating vector of claim 1, and expressing the NEF, REV or TAT protein or an immunologically active fragment thereof in said person.

13. (Amended) A method comprising administering to a person in need thereof an immunologically effective amount of a mixture of vectors, wherein at least one of the mixture of vectors is a self-replicating vector of claim 1.

IN THE ABSTRACT

Kindly enter the attached Abstract of the Disclosure.

IN THE SEQUENCE LISTING

Kindly enter the attached paper and computer readable forms of the Sequence Listing.